

## Five New Species of Mitridae from the Indian and Pacific Oceans

BY

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(Plate 11)

### INTRODUCTION

DURING THE PAST SEVERAL YEARS a number of unknown mitrids from widespread localities have come to my attention from several sources. At least five of these seem to be unquestionably new species. Three of them were first encountered during my visit to Western Australia in 1966; the fourth was a single specimen from Easter Island given to me perhaps a dozen years ago by Raymond L. Summers of Petaluma, California; and the final species, from Coron, Philippine Islands, was recently sent to me for identification by Fernando G. Dayrit of Manila. All five will be described here.

### ACKNOWLEDGMENT

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1. In October 1966, Alexander Gilbertson of Geraldton, Western Australia showed me the collection of miscellaneous shells he has put together during several years of lobster fishing and dredging in the vicinity of the Abohos Islands, some 50 miles offshore from his home base. Among these shells I noticed a species of mitrid I had never seen before; later, though it was his only specimen, Mr. Gilbertson very generously presented it to me for my own collection. About a week later, while working in the mitrid collection at the Western Australian Museum upon the invitation of its Curator of Molluscs, Dr. Barry Wilson, I found an almost identical shell from a different

locality some 250 miles to the south of the Abohos Islands. To the best of my knowledge these are the only two specimens of this species now known.

*Pterygia gilbertsoni* J. CATE, spec. nov.

(Plate 11, Figures 1 a - 1 d)

Shell large, solid, heavy, cylindrically ovate, ventricose, light tan in color, mottled and vaguely axially striped with irregular white "flames". Sutures moderately impressed and lightly crenulated; spire slightly less than half the length of the shell. Whorls convex, numbering 8, plus  $1\frac{1}{2}$  nuclear whorls; apex slightly eroded in both known specimens. Surface of earliest whorls decussate with numerous axial grooves and about 3 smooth, shallow spiral grooves; body whorl with 3 distinct spiral grooves at shoulder and about 8 additional irregularly-spaced, very shallowly impressed spiral grooves on body whorl to base of shell; in the paratype these are somewhat stronger than in the holotype, and appear as darker brown, faintly incised lines. Aperture about twice as long as spire, straight; labrum in the holotype thin (immature); in the paratype thick, simple and with barely perceptible callus-nodes at end-points of incised spiral lines of body whorl. Columella, aperture and lip porcelain-white. Columella calloused, with 5 to 6 prominent oblique folds; anterior canal short, straight.

**Discussion:** *Pterygia gilbertsoni* is somewhat similar to *P. hayashii* (KIRA, 1959), a rare form from Japan. It differs from that species by its lack of axial spots and punctate spiral sculpture throughout, both of these characters being prominent in *P. hayashii*. *Pterygia gilbertsoni* differs from *P. nucea* (GMELIN, 1791) by its more produced spire, its faintly incised spiral sculpture which is lacking in *P. nucea*, its straight lip (flaring in *P. nucea*), and the

apparent lack of a periostracum, which is blackish and fairly heavy in *P. nucea*. *Pterygia gilbertsoni* differs from *P. dactylus* (LINNAEUS, 1758) in its more produced spire, its fewer columellar folds and its less flaring lip.

**Holotype:** No. 1129-67, Western Australian Museum, Perth, Western Australia. Length: 46.4 mm; Width: 18.9 mm; Length of Aperture: 28.7 mm. Collected 5 miles west of NW end of Rottnest Island in 19½ fms, on sand and dead coral substrate. Leg. Hawo, 5/7/60.

**Paratype:** No. 12379 in coll. Jean M. Cate, Los Angeles, California, U. S. A. Length: 51.6 mm; Width: 20.4 mm; Length of Aperture: 32.7 mm. Dredged in 24 fms on coral bottom, ½ mile NE of Eaglesnest Island, Easter Group, Abrolhos Islands, Western Australia, July 1963. Leg. Alexander Sutton Gilbertson, a crayfisherman residing at Geraldton; the new species is named in his honor.

**Type Locality:** Off Rottnest Island, near Fremantle, Western Australia in 19 fms (Lat. 32°00' S; Long. 115°30' W). The known range at present is from Rottnest Island to the Easter Group of the Abrolhos Islands, a span of 4°32'.

2. By an interesting coincidence, the other new species from Western Australia also seems to belong to the comparatively small genus *Pterygia* RÖDING, 1798. It is represented by a unique specimen now in the collection of the Western Australian Museum at Perth.

*Pterygia barrywilsoni* J. CATE, spec. nov.

(Plate 11, Figures 2 a, 2 b)

Shell large, heavy, solid; cylindrically ovate, ventricose. Sutures moderately impressed, spire less than half the length of shell. Whorls convex, numbering 7 plus 1 nuclear whorl which is somewhat worn. All whorls marked by closely punctate spiral grooves, about 21 on the body whorl and 7 on the penultimate whorl. Columella whitish, with 4 prominent rust-colored oblique folds. Color of shell off-white, with prominent brownish-gray to yellowish irregular flame-like axial markings; base of shell rust colored. Two fairly narrow white transverse zones appear at about mid-point of dorsum, though these are not so clearly defined on ventral side.

**Discussion:** *Pterygia barrywilsoni* somewhat resembles *P. gilbertsoni*, but has a rougher, rather chalky texture whereas *P. gilbertsoni* appears smooth and shining. *Pterygia barrywilsoni* has a distinctive surface ornament, a much more developed punctate sculpture, and a vivid coloration not present in other *Pterygia* species. The original museum label indicates that this specimen had

been misidentified as *Scabricola sphaerulata* (= *S. papilio* (LINK, 1808)), an error brought about evidently through the combination of color and pattern which are remotely similar to that species; however, *P. barrywilsoni* quite definitely seems to fall within the subfamily Cyliodromitridinae and in the genus *Pterygia* because of its short spire and general shell shape. The soft parts and radula are unknown.

**Holotype:** No. 334-66 in the Western Australian Museum, Perth, Western Australia. Length: 38.9 mm; Width: 15.5 mm; Length of Aperture: 23.0 mm. Collected at Nightcliffe, Darwin, Northern Territory, Australia. Leg. Jo Cunningham, 1962.

**Type Locality:** Darwin, Northern Territory, Australia (Lat. 12°20' S; Long. 130°59' E).

This new species has been named for Dr. Barry R. Wilson, Curator of Molluscs at the Western Australian Museum, in recognition of his pioneering activities in the field of malacology on the west coast of Australia.

3. The third new species to come to my attention in the Western Australian Museum Collection is not from Australian waters, but from the Sulu Sea area near Borneo, where it was collected by the Pele-Sulu Expedition of 1964. Specimens from that expedition were shared with the museum at Perth because its Curator of Molluscs, Dr. Barry Wilson, accompanied the expedition as a collector. The type lot consists of 14 shells, which will be shared with other appropriate museums of Dr. Wilson's choice.

*Vexillum sitangkaianum* J. CATE, spec. nov.

(Plate 11, Figures 3 a, 3 b)

Shell long, slender, fusiform, somewhat turriculate; spire shorter than body whorl. Protoconch deviated, paucispiral, transparent glassy brown; teleoconch consisting of 10 flatly convex abutting whorls plus 1½ nuclear whorls. Axial sculpture of prominent smooth collabral costae (10 to 11) on penultimate whorl which tend to become obsolete near outer lip; costae not regularly aligned at sutures. Spiral ornament of equidistant shallowly incised grooves, 3 on spire whorls, about 15 on body whorl, faintly granulate on neck. Aperture straight, siphonal canal short and slightly recurved. Labrum relatively thin, simple, flattened in the middle, constricted at base, numerous faint irregular lirae within. Columella straight, with 4 strong oblique posterior folds and one weak fold anteriorly; peristome continuous. Siphonal fasciole weakly produced, heliccone nonumbilicate.

Shell color pure white throughout except protoconch, which is glassy brown. Protoconch present only in Paratype 7, eroded in others. Weak, colorless periostracum present in some specimens. Animal and radula unknown. Discussion: *Vexillum sitangkaianum* most closely resembles *V. vulpecula* (LINNAEUS, 1758), but differs from that species in the following ways: it has a more slender and tapering spire, more shouldered whorls, a more constricted base, a flattened and more constricted outer lip, fewer axial costae and a total absence of color or surface ornament.

**Holotype:** No. 1230-67 in the Western Australian Museum, Perth, Western Australia. Collected by the Pele-Sulu Expedition in 9 to 13 fms, South Lagoon, Sitangkai, Sibutu Island in the southernmost part of the Sulu Archipelago, northwestern Celebes Sea, March 25, 1964.

### MEASUREMENTS OF THE TYPE LOT (in millimeters)

	Height	Maximum Diameter	Length of Aperture
Holotype	34.2	13.3	20.4
Paratype 1	31.6	11.8	17.2
Paratype 2	25.7	9.2	14.1
Paratype 3	25.6	9.3	14.6
Paratype 4	25.5	9.7	15.8
Paratype 5	24.3	9.4	14.5
Paratype 6	24.1	8.5	13.6
Paratype 7 <sup>1</sup>	23.3	9.1	14.3
Paratype 8	23.1	8.9	13.8
Paratype 9	23.0	7.9	13.0
Paratype 10	22.3	10.1	15.9
Paratype 11	20.4	7.4	11.2
Paratype 12	20.0	8.9	12.1
Paratype 13	19.6	7.3	11.7

<sup>1</sup> with protoconch

**Type Locality:** 9 to 13 fms, South Lagoon, Sitangkai (Lat. 4°50' N; Long. 119°50' E). The range of the species is unknown, as the type lot represents the only specimens known to me at this time.

The specific name *sitangkaianum* is derived from the name of the type locality.

4. The fourth new species under discussion was collected at Easter Island in the southeast Pacific Ocean by Father Sebastian Englert in 1955; he sent a number of specimens to Raymond Summers, who divided them among several

collections. One shell was sent to me, 4 went to the California Academy of Sciences, and it is believed that additional specimens were sent to the U.S. National Museum, the American Museum of Natural History, and possibly to other museums as well; no records were kept of where they were sent. The 5 specimens now in California (those at the California Academy of Sciences and in my own collection) will be enumerated as the type lot; I have not seen the shells sent elsewhere by Mr. Summers.

*Strigatella rapanuiensis* J. CATE, spec. nov.

(Plate 11, Figures 4 a, 4 b)

Shell small, cylindrically ovate, nearly smooth; whorls slightly convex, numbering 5 including the body whorl, nucleus lacking; spire less than half the length of shell; sutures impressed; labrum thick, smooth, slightly reflected in the middle, flaring at base; columella with 4½ oblique folds; anterior canal very short, straight; color dark yellowish-tan with approximately equidistant deep chocolate-brown, minutely punctate spiral stripes; one pale ochre band appears in center of spire-whorls and 2 near base of shell; interior of aperture and columella glossy white. A periostracum may be present in living examples. Animal and radula unknown.

Discussion: *Strigatella rapanuiensis* superficially resembles *Mitra vexillum* REEVE, 1844 because of its similar size and the general color and pattern. It differs, however, in that the stripes are not deeply incised as in *M. vexillum*, instead being smooth, though minutely punctate; *S. rapanuiensis* has a lower spire, a strigatelliform outline, and a glazed white aperture, all of which are lacking in *M. vexillum*.

The species is tentatively assigned to the genus *Strigatella* on the basis of its reflected lip, and its general outline and color which conform to the typical characters of that genus; however, further research is needed to determine whether this placement is correct. Among the *Strigatella*s it most closely resembles *S. tristis* (BRODERIP, 1836) from the Panamic Province, but the presence of the striped pattern and a lack of a whitish band below the sutures, among other characters, mark it as clearly different from *S. tristis*.

**Holotype:** No. CAS 13103 in the California Academy of Sciences Geology Department Type Collection, San Francisco, California. Leg. Father Sebastian Englert, 1955.

**Paratypes:** Paratypes 1 to 3 in the California Academy of Sciences Geology Department Type Collection (CAS 13104, 13105, 13106), San Francisco, California. Para-

type 4 in the collection of Jean M. Cate, Los Angeles, California (No. 12380).

MEASUREMENTS OF THE TYPE LOT  
(in millimeters)

	Height	Maximum Diameter	Length of Aperture
Holotype	25.0	11.9	15.7
Paratype 1	22.1	10.4	15.7
Paratype 2	22.7	10.8	14.4
Paratype 3	21.4	10.8	14.4
Paratype 4	24.3	11.3	15.6

**Type Locality:** Easter Island (Rapa Nui), south Pacific Ocean (Lat. 29°00' S; Long. 109°30' W). The specific name *rapanuiensis* is derived from the local name for the type locality. The range of the species is unknown, as the type lot constitutes the only specimens of record at present.

**Addendum:** My conviction that the single specimen I received nearly a dozen years ago was a valid new species now seems to be borne out by the discovery of at least 9 additional specimens (including the 4 at the California Academy of Sciences). I have recently verified that the American Museum of Natural History has at least one specimen (W. E. Old, Jr., personal communication). After the species description was in manuscript I received 4 additional shells as a further gift from Mr. Summers; these had been collected by Father Englert (presumably at the same locality) in 1965 — ten years later than the original lot. I have not included the measurements of these specimens with those of the type lot, but note that they all fall within the size range listed above. It is likely, from Mr. Summers' recollections, that specimens of *Strigatella rapanuiensis* exist in the collection at the U. S. National Museum and possibly others as well.

5. The final new species to be described is a small, colorful shell from the southern Philippines; it is represented by two nearly identical specimens.

*Vexillum coronense* J. CATE, spec. nov.

(Plate 11, Figures 5a, 5b)

Shell small, slender, fusiform, somewhat turriculate; spire about the same height as the body whorl. Protoconch lacking in both known specimens; teleoconch consists of 8 flatly convex whorls. Axial sculpture of 10 prominent costae (11 to 12 on penultimate whorl) which are not regularly aligned at sutures. Sutures impressed; spiral ornament consists of numerous equidistant shallowly incised transverse grooves (15 on body whorl) in intercostal interstices, becoming nearly obsolete over ribs. Aperture straight, siphonal canal short and slightly recurved. Neck of shell, starting at first posterior columellar fold, is coarsely ribbed, granulose. Labrum thin, simple, constricted at base, with numerous faint irregular lirae within. Columella straight, with 3 strong oblique folds posteriorly and 1 very weak fold anteriorly. Siphonal fasciole weakly produced, helicoid nonumbilicate.

Shell color bright, deep orange except neck and columella which are both porcelain-white. First 4 whorls bear narrow white spiral bands; final 2 to 3 whorls are surrounded by a fainter orange band at periphery. Animal and radula unknown.

**Discussion:** *Vexillum coronense* is so markedly different from any other species known to me that it was difficult to select a species for diagnostic comparison. Almost arbitrarily I have chosen *V. moana* J. CATE, 1963 because of its similarity in coloration and construction at the base of the shell; the sharply defined rugose white base is striking in both species. Otherwise, however, *V. coronense* and *V. moana* differ markedly, *V. coronense* being more slenderly tapering and having an altogether different sculpture, surface ornament and color.

In overall shape *Vexillum coronense* more closely resembles *V. intertaeniatum* (SOWERBY, 1874), but that species lacks the interstitial spiral sculpture, is not constricted at the base, has a greater number of axial costae and bears a different type of surface ornament. The color of *V. coronense* recalls the brilliant orange of *V. taeniatum* (LAMARCK, 1811), but is perhaps a shade or two deeper and richer in color than *V. taeniatum*.

Explanation of Plate 11

Figures 1a, 1b: Holotype, *Pterygia gilbertsoni*, spec. nov. (ca.  $\times 1$ )  
Figures 1c, 1d: Paratype, *Pterygia gilbertsoni*, spec. nov. ( $\times 1$ )  
Figures 2a, 2b: Holotype, *Pterygia barrywilsoni*, spec. nov. ( $\times 1\frac{1}{2}$ )

Figure 3a, 3b: Holotype, *Vexillum sitangkaiantum*, spec. nov. ( $\times 1\frac{1}{2}$ )  
Figures 4a, 4b: Holotype, *Strigatella rapanuiensis*, spec. nov. ( $\times 2$ )  
Figures 5a, 5b: Holotype, *Vexillum coronense*, spec. nov. ( $\times 3$ )



Figure 1 a



Figure 1 b



Figure 1 c



Figure 1 d



Figure 2 a

Figure 2 b



Figure 3 a

Figure 3 b



Figure 4 a

Figure 4 b



Figure 5 a

Figure 5 b